Memorandum

MIAMI-DADE COUNTY

Date: May 8, 2007

Agenda Item No.
12(B)4

To: Honorable Chairman Bruno A. Barreiro and Members, Board of County Commissioners

From: George M. Burgess, County Manager

Subject: First Annual "Green Government" Report

I am pleased to present to the Board the attached First Annual "Green Government" Report. This report describes many of the initiatives and programs that County departments are pursuing for a more ecologically sensitive approach to local government and the global environment as a whole. Over the last several months, I have forwarded various reports to the Board through the Governmental Operations and Environment Committee chaired by Commissioner Seijas, such as the Long Term CO2 Report and the Interim Report of the Miami-Dade Resource Conservation Committee. While this First Annual "Green Government" Report does contain a great deal of information, it is fairly general in nature. This report will be expanded over time to include year over year tracking of initiatives and programs. While Miami-Dade County has been a leader in environmental initiatives for many years, new issues such as global climate change, green buildings, and use of environmentally preferable products are emerging. The challenge of preparing our community for an uncertain environmental future is critical and we look forward to bringing together many diverse points of view to meet this challenge.

Assistant County Manager

FIRST ANNUAL GREEN GOVERNMENT REPORT

MARCH 2007

INTRODUCTION

Miami-Dade County (County) currently engages in many Green Government practices and is working towards expanding the use of these practices throughout County operations. The use and implementation of Green Government practices is a priority that has been clearly expressed by the Board of County Commissioners and heard by the County administration.

Green Government practices encompass a wide range of activities including: (1) reduction of greenhouse gases and other air polluting emissions (2) green procurement (3) green recycling measures (4) reductions in energy consumption (5) improvement of environmental standards for our County fleet of vehicles and equipment (6) land preservation, and (7) green building practices.

In Miami-Dade County, considerable efforts are already underway on many of these activities. The County has to build on our experience and our growing understanding of Green Government issues. This report describes the initiatives and programs that several County departments are pursuing for a more eco-friendly approach to government and also provides a description of past and current activities the County has implemented, while looking ahead at future opportunities.

PAST ACTIVITIES

Several Boards, Task Forces, and Initiatives, exist and/or existed over the years that have provided an excellent foundation for how Green Government is implemented in County operations:

International Council for Local Environmental Initiatives
In 1990, with the leadership of then County Commissioner Harvey Ruvin, Miami Dade County helped form the International Council for Local Environmental Initiatives (ICLEI), which started greenhouse gas reduction projects in fourteen (14) communities around the world, including in Miami-Dade County. This project, entitled Cities for Climate Protection, now encompasses nearly 150 communities in the United States and approximately 800 throughout the world, and has helped to reduce significant amounts of emissions in these communities as well as in Miami-Dade County government.

Eastward Ho! Brownfield Partnership
The eastward Ho! Brownfields partnership, was created in 1997 as a diverse coalition working together to revitalize southeast Florida's historic urban core, thereby helping alleviate growth pressures on the nation's most imperiled wetlands ecosystem, the Everglades. The Partnership was designated one of the first 16 National Brownfields Showcase Community Projects on March 17, 1998, and was the first National Brownfields Showcase Community to cover a large, regional metropolitan area. The South Florida Regional Planning Council (SFRPC) was the coordinator for the Partnership and has applied, received, and administered several grants.

Environmental Advisory Task Force
The Environmental Advisory Task Force was established in 1979 to provide recommendations to the Board of County Commissioners (BCC) on environmental aspects of County buildings including, but not limited to, indoor air quality, integrated pest management and recycling, environmental enhancement, pollution prevention, education and outreach, and related topics.

Alternative Fuels Advisory Committee
The County Manager appointed the Alternative Fuels Advisory Committee on January 18, 2002, pursuant to Board of County Commissioners (BCC) Resolution No. R-378-01. The Committee's mission was to develop and implement a program to enhance the utilization of alternative fuels in Miami-Dade County. The Committee was comprised of representatives from different County agencies that deal with fleets or transportation issues. The Committee prepared a report that included a plan addressing both short-term and long-term recommendations and actions regarding alternative fuel use. One of the highlights of the recommendations of this Committee was the recommendation for the County to begin to procure hybrid vehicles. There is currently a Resolution proffered by Commissioner Sorenson that recommends the revival of this Committee.

Miami Dade Green Coalition
The Miami-Dade Green Coalition was established in 1996 by Miami-Dade County's Environmental Advisory Task Force. Its mission was to increase the sustainability of Miami-Dade County by incorporating land planning, design, building products and operations that will reduce resource consumption and maintain healthy urban environments and productive agriculture, while protecting the natural systems for future generations. This Committee created a Green Action Agenda that was a list of potential

directions for South Florida that addressed economic, environmental and social sustainability. Specific themes and projects included: recycling; green homes; building code change; use of non-toxic materials; solar/aquatic sewage treatment; public transit enhancements; development of commons projects; green curriculums for schools; storm water projects; landfill issues; indoor air quality standards; and retrofitted building lighting. The Green Action Agenda can be found at:

<http://www.miamidade.gov/derm/globalwarming/library/Dade-Green.pdf>

Florida Green Building Coalition

In 2001, the Florida Green Building Coalition (FGBC) was formed and eventually replaced the Miami-Dade Green Coalition. It worked towards many of the same goals, but on a statewide level. The Florida Green Building Coalition published the Florida Green Building Standard for Homes in July 2001, which was intended to establish a voluntary, statewide standard for Green Home Designation. Since this document was published, the FGBC has developed and published similar standards for the following categories:

- The Florida Green Home Standard;
- The Florida Green Development Standard;
- The Florida Green Local Government Standard for Green Cities and Counties;
- The Florida Green Commercial Building Standard.

It is important to highlight that DERM was very instrumental in the development of these standards. While the County has implemented many of these standards, we have not yet been designated as a "Green Local Government" by the FGBC. That will definitely be a goal going forward.

Many of the FGBC documents are all available at:

http://www.floridagreenbuilding.org/

CURRENT ACTIVITIES

Below are some of the initiatives that are currently being undertaken by various County departments:

GENERAL SERVICES ADMINISTRATION (GSA)

Setting Policy for Green Buildings - Pursuant to Resolution R-1200-05, sponsored by Commissioner Sorenson, and approved by the Board on October 18 2005, GSA staff is currently drafting an Ordinance and Administrative Order (AO) that will establish in policy and procedure that new construction and major renovations of County owned and operated facilities will adhere to the principles of sustainable development to the maximum extent possible. It will impose the nationally recognized Leadership in Energy and Environmental Design (LEED)[1] Green Building Rating System as the primary benchmark for assessing performance. Within this rating system, based on the extent of environmental projects implemented, buildings are awarded a certification of silver, gold or platinum. County staff is in the process of obtaining their Professional Accreditation to successfully integrate GREEN building practices for new and existing County facilities. Staff plans to present the ordinance for first reading in early 2007.

The *Sustainable Building Committee (SBC)* was created, with an advisory capacity, to overview environmental policies as they relate to construction and maintenance of County facilities. On June 16, 2006, at its first meeting, SBC members were given an overview of the green building initiative in Miami-Dade County and the Committee's role in the process. The Committee was also briefed by the local chapter of the United States Green Building Council (USGBC) on the LEED rating system[2]. The expected outcome of this group will be specifically, will be to establish design and construction standards, create an education/marketing plan, develop contract language, and evaluate incentives to be used as part of the County's Sustainable Building Program.

Energy Conservation - Under the coordination of the General Services Administration (GSA), the County has been aggressively utilizing performance energy contracts to replace inefficient lighting and water fixtures, and large HVAC and power equipment, in owned facilities throughout the County. As of June 2005, annual energy consumption has significantly decreased throughout Miami-Dade County's operations, and new projects continue to be implemented on an annual basis. The program has yielded considerable results for those facilities in which conservation projects have been implemented starting in 1998. Some examples are as follows (these examples apply only to specific facilities where the projects have been implemented):

- *GSA operated Buildings* - Since the implementation of the conservation program in 1998, electrical consumption has been reduced by 25% to 18% (the level varies from

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[1] The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings' performance. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

[2] The LEED Rating System was created to transform the built environment to sustainability by providing the building industry with consistent, credible standards for what constitutes a green building. The rating system is developed and continuously refined via an open, consensus-based process that has made LEED the green building standard of choice for Federal agencies and state and local governments nationwide.

building to building). Reductions as high as 3,258,227 KWHs have been documented for 2004 and 2005. Additionally, overall water usage has declined by 27%;

- *Correctional Facilities* - Electrical usage has been reduced by 20%, due to activities such as lighting retrofits, and replacing A/C units to high efficiency A/C chiller and cooling towers. Water consumption has been reduced by 25% through the implementation of low water flow devices in toilets, faucets and showers. Additionally through the installation of a trash compactor and a cardboard bailer, trash hauling services are expected to be reduced by 25%, and natural gas usage reduced by 29%;
- Miami-Dade Police Headquarters has reduced electrical usage by 27% through lighting retrofits, installation of a high efficiency A/C chiller, and replacement of motors and drives
- *Fire Rescue Department Headquarters* - Savings in electrical and water usage of 23% and 18%, respectively,
- *Library Department* - Energy conserving measures such as energy-saving lights and ballasts, new A/C controls and motors, as well as variable frequency drives, has resulted in an 8% decrease in electrical usage

In 2006, the County completed the purchase from TECO Thermal Systems, Inc. of its Downtown Miami District Cooling Facility, located at 1110 NW First Avenue. The acquired plant provides chilled water to two contracted locations: the Technology Center of the Americas and the American Airlines Arena. The County plans to phase-in this new system to service the existing Downtown Government Center, and future County offices in the Overtown Transit Station and the Children's Courthouse. During this transition the new system will be expanded and connected to the County's existing downtown chilled water distribution loop. A 25% energy savings is expected from the implementation of this system primarily as a result of lower electricity usage.

Fuel Management

Motor Vehicles – Fleet Management will continue to test and evaluate vehicles that offer opportunities to be more fuel-efficient. The County now has a total hybrid fleet of 299 units composing 3.6% of the total light fleet. The County presently operates the largest municipal hybrid fleet in the State of Florida and has one of the largest hybrid fleets in the United States.

In FY 2004-2005, the Miami-Dade Police Department (MDPD) purchased 150 Chevrolet Impalas. These vehicles have been incorporated into their fleet, replacing the older model Crown Victoria. An additional 50 Impalas were purchased and issued in FY 2005-2006, as well as 30 Chargers, which are also more fuel-efficient than the vehicles they are replacing. Monitoring activities are being conducted and a cost benefit study report will be presented in the Second Annual Green Government Report. Other fuel strategies implemented by the Fleet Management Division that remain in effect are:

Incorporation of fuel-efficient measures in all new vehicle bids
A Fleet Cost Control Program has been developed to ensure that vehicles requested by departments are justified by their functional requirements
A moratorium on the purchase of all SUVs

Other Ongoing GSA Measures

Issuance of GSA Fleet Management pool vehicles has been restricted to those employees who have obtained authorization from their Department Director. This practice resulted in a 35% reduction in the number of pool vehicles issued during the first quarter of FY 05-06. However, this number trended upwards during the last three quarters of FY 05-06, resulting in an overall reduction of pool vehicle usage of 16%. GSA Fleet Management has experienced savings from lower fuel consumption and a decrease in vehicle maintenance service.

DEPARTMENT OF ENVIRONMENTAL RESOURCES MANAGEMENT (DERM)

The Office of Sustainable Environment and Education (OSEE) was established by DERM in 1995 to coordinate and promote sustainability within County operations, other government agencies, industry, and the community. Some of the activities conducted by OSEE in promoting "Green Government" include:

Miami-Dade Resource Conservation Committee (MDRCC) - Representatives from 35 County Departments work together to promote and facilitate the efforts of County employees and departments in reducing waste, recycling, and Environmentally Preferable Purchasing (EPP) activities. Monthly meetings are held to work on initiatives and identify areas for improvement as they relate to the environment and daily operations of county government. The objectives and responsibilities of the Resource Conservation Committee include:

- Researching and identifying new opportunities for implementation of waste reduction, recycling, and Environmentally Preferable Purchasing (EPP).
- Publicizing these opportunities and programs to County employees and departments, and assisting in their implementation.
- Developing recommended policy statements aimed at encouraging waste reduction, recycling, and EPP.
- Recommending modifications to ordinances, administrative orders, program goals, and operating procedures in order to encourage waste reduction, recycling, and EPP.
- Coordinate County departments and recycling vendors for paper/cardboard and toner cartridges by reviewing the service provided by the contractors, and resolving issues encountered with the County's recycling program.
- Recognizing and promoting employee and department accomplishments in these activities and programs.
- Providing an annual report that summarizes all in-house recycling programs, as well as other environmentally based promotional efforts, activities, sponsorships, and accomplishments performed by the Committee during the previous year.

An interim Report on Recycling and EPP Activities was presented to the INLUC Committee on January 16, 2007. The full Annual Report will be submitted to the Board in April 2007. Current projects and recent accomplishments by the MDRCC include:

- Oversight and facilitation of the Office Paper Recycling Program. From FY 2004-2005 to FY 2005-2006, Miami-Dade County offices recycled over 700 tons of office paper.
- To date, recycled operations generated over $595,000 in revenues since the passage of Resolution R-374-03 in 2003.

- The Miami-Dade Aviation Department began purchasing recycled paper cups and plates instead of Styrofoam products for their food service operations; the Clerk, Circuit and County Courts began purchasing recycled copy and computer paper that contained 30% post-consumed sources; DERM continued transition from traditional film cameras to digital cameras. Besides the environmental benefit, the cumulative cost differential savings of over $120,000 was also realized as a result of EPP initiatives.
- DERM and DPM staff worked together to develop and incorporate Environmentally Preferable Purchasing language (Green-Seal) in County janitorial service and cleaning chemical contracts. This language requires contractors to provide and use less toxic, more environmentally friendly, cleaning products. This results in less environmental impacts from production and use of these products, and also results in healthier and safer working conditions for both the County employees working in the office and the cleaning staff utilizing these safer cleaning products. In FY 2005-2006, seventeen (17) janitorial service contracts are using Green Seal certified products. Green Seal is a national standard developed in collaboration with several environmental health organizations, whereby products have undergone rigorous testing for certification.

Pollution Prevention Program (P2)- The P2 program assists local industries and government in identifying ways to reduce or eliminate the amount of waste generated. This program provides education and non-regulatory technical assistance whereby an organization's daily practices and procedures are reviewed and P2 opportunities are identified. Recent projects of DERM's P2 Program include the following:

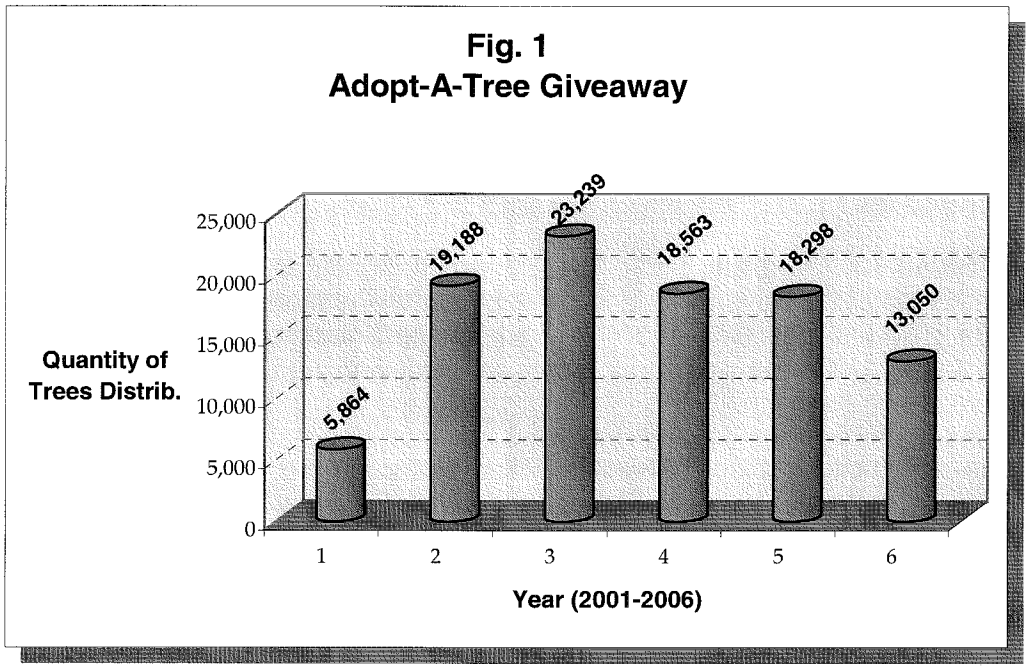
Adapto Steel Products, Ashland Chemical, Blumenthal Export, Inc., Dade Behring, Engelhard/ICC, EuroBank, Imperial Plating, Industrial Equipment & Supply, Kendall Plastics, Mako Marine, Miami Brewing Co., Pan American Hospital, Perko, Pintexs Chemical, Republic Metals Corp., Surface Design and Technology, The Miami Herald, US Postal Service (South Fl. District), and Warner Bros. Publications

The assistance provided by the P2 program to these companies has provided monetary savings of approximately $25,366,646 from decreased electricity and fuel usage. It is estimated that these companies are also reducing approximately 224,619 tons of CO2 per year and a total of 246,190 tons of CO2 since 1996.

Adopt a Tree Program- A 1996 analysis by the non-profit organization American Forests, in partnership with DERM, determined that the tree canopy cover in unincorporated Miami-Dade County averaged only about 10%, with some areas showing as little as 1-2% tree cover, This is significantly below the 35% that is considered as adequate urban canopy nationwide. Faced with the declining canopy due to natural disasters, development, and citrus canker eradication, Miami-Dade County was awarded $6 million from the State Department of Agriculture to increase the tree canopy in Miami-Dade County. This funding led to the creation of the Adopt-a-Tree program, which held its first event on July 27, 2001. Miami-Dade single-family or duplex homeowners are eligible to adopt two free trees each year, which are distributed at events throughout the community during the rainy season. Because the program is designed to help bolster the condition of our community's tree canopy, the trees selected for "adoption" are ones that make good shade trees in their adulthood. The program provides native, "ornamental" shade trees and a variety of non-citrus fruit trees and includes a

multilingual educational component addressing appropriate placement, planting procedure and long-term maintenance of the adopted trees. In the past six years since its inception, Adopt-a-Tree has educated thousands of Miami-Dade residents and has distributed 99,783 trees. A new tree canopy study is now being planned by the Community Image Advisory Board, in conjunction with DERM and the City of Miami to begin in 2007.

Figure 1. Annual number of trees given away since the start of the Adopt-a-Tree Program. Number of trees given away does show a slight downtrend due to availability of trees from recent hurricane activity



Miami Dade Urban CO2 Reduction Program

DERM administers the County's Long Term Urban CO2 Reduction Program that was established in 1993. This Program established an aggressive goal of reducing the County's overall CO2 emissions by 20% of the original baseline calculated for 1988. The plan targets energy use, transportation, land use, and solid waste as the primary contributors to climate change locally, and identified 35 opportunities to improve County operations, reduce energy demand and improve our quality of life. Since then, the County has implemented over 50 initiatives to help reduce greenhouse gas (GHG) emissions, resulting in an average annual reduction of almost 2,500,000 tons of CO2. New GHG emission targets are being developed in 2007. Through the sponsorship of Commissioner Seijas and support of the County Commissioners, the collection of baseline data began in December 2006 to establish a greenhouse gas emissions baseline necessary for the County to join the Chicago Climate Exchange (CCX) program. The CCX is the world's first greenhouse gas (GHG) emission registry for all six-greenhouse gases, and members make a voluntary but legally binding commitment to reduce GHG emissions. In addition, Commissioner Seijas sponsored legislation, with

subsequent Board approval, for the County to establish the Climate Change Advisory Task Force (CCATF) to find solutions to global warming problems that will impact Miami-Dade County. The CCATF held its first meeting on February 15, 2007.

Implementation of EPA's Energy Star- Monitor Power Management Project
DERM implemented the EZ Save Energy Star Power Management tool in November 2004. When power management is enabled through network configuration, computer monitors enter into a low-power "sleep" mode after a period of inactivity. This reduces the energy consumption from about 70 watts down to as little as 4 watts when in "sleep" mode. When a user touches the keyboard or mouse, the monitor is quickly "awakened," returning the monitor to full power and normal function. EPA estimates that 45 percent of monitors do not have power management enabled. Following implementation, 100% of DERM's computer workstations are compliant with the Energy Star Monitor Power Management Program, which resulted in the prevention of 218 tons of CO2 emissions in 2005.

Air Quality Management Division
DERM, with the support of Miami-Dade County's General Services Administration (GSA), purchased and installed emissions-reducing retrofits on twenty (20) community buses serving populations sensitive to diesel exhaust, including the elderly, infants and young children. The funding for these retrofits was awarded through a Voluntary Diesel Retrofit Grant awarded to Miami-Dade County by the Environmental Protection Agency (EPA). The buses retrofitted under this grant serve the county's Department of Human Service's Elderly Services and Head Start programs, as well as Park and Recreation's Leisure Access Services program. The 40% reduction in emissions achieved by these buses will improve ambient air quality and reduce the exposure of sensitive populations to diesel exhaust. The Department is also working with EPA on developing the next list of candidate vehicles for retrofit under this competitive funding award.

The Department also worked with the Miami-Dade County School Board to complete a project to retrofit eight of their school buses with emissions reducing technology and assisted with an application for an EPA Clean School Bus USA grant to fund the retrofit of an additional 150 buses. The school board was awarded the grant and expects to complete retrofit of those buses in 2007.

Environmentally Endangered Lands (EEL)
This program was established to identify and secure environmentally endangered lands for preservation. Overall, more than 17,917 acres of Environmentally Endangered Lands have been acquired since 1990. The purchase and restoration of these lands ensure that they are shielded from development and will continue to thrive as natural habitats. The public now owns and manages:

16,395 acres of freshwater wetlands
662 acres of pine rockland
620 acres of coastal wetlands
221 acres of tropical hardwood hammock
19 acres of scrubby pine flatwoods
Environmental Endangered Lands Covenants - To encourage conservation of sensitive natural areas, such as pine rocklands or hardwood hammocks, the County offers a reduction in property taxes to private landowners in exchange for active management of these resources. There are currently more than 70 individual landowners who have

signed up for this voluntary 10-year program, resulting in conservation of more than 270 acres of rare forest resources.

Biscayne Bay Restoration and Enhancement Program
Since 1988, DERM has restored and enhanced approximately 300 acres of coastal wetlands on public lands. Major wetlands restoration efforts have been conducted by DERM at the following sites:

Bill Baggs; Cape Florida State Park
Highland Oaks County Park
Oleta River State Park;
Virginia Key Park (City of Miami)
Bear Cut Preserve, (Miami-Dade P&R)
R. Hardy Matheson Preserve, (Miami-Dade P&R)
Florida International University (Biscayne Bay campus)
Chicken Key Bird Rookery, (Miami-Dade P&R)
Dinner Key Islands, (City of Miami)-on going

Additionally, DERM has created or restored over 60 acres of maritime hammock at public parcels throughout Biscayne Bay, and completed habitat restoration on 22 islands in Biscayne Bay.

Artificial Reef Program
Established in 1981, significant quantities of materials have been deployed in 13 offshore and 7 inshore permitted artificial reef sites to provide fisheries habitat and diving destinations as well as mitigation for impacts to natural reef areas. Artificial reefs are constructed in areas that have been damaged by past dredging and filling, or that are devoid of productive bottom communities. The inventory of artificial reefs is comprised of a wide variety of material types including:

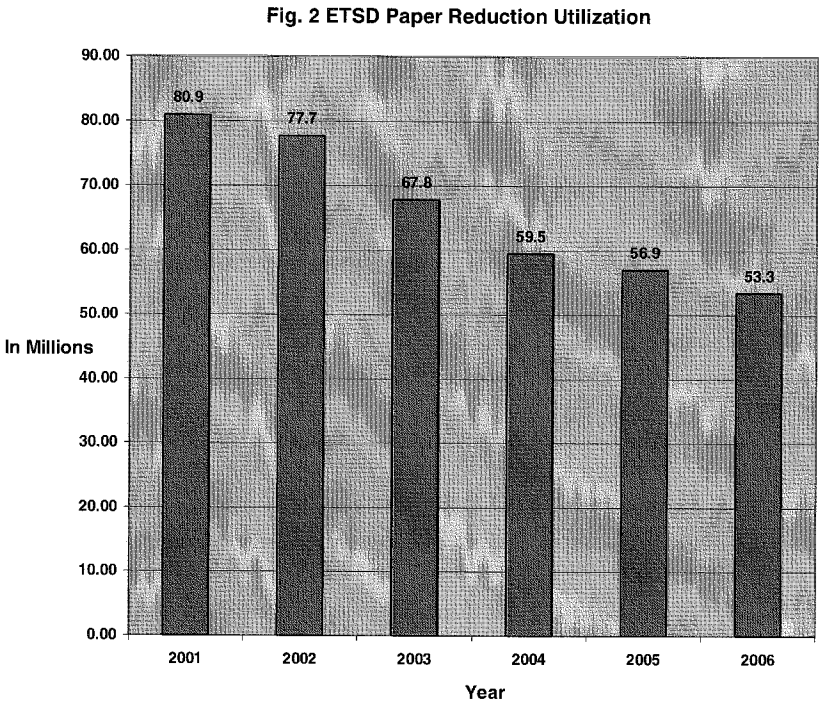
111 steel ships and barges ranging in size from small 30' boats to a 450' ship.
Over 200 steel structures including army tanks, radio towers, water towers, decommissioned oil rig platforms, pipes and storage tanks.
Over 2000 tons of surplus concrete materials
1120 prefabricated concrete modular structures including DERM modules, Reef-Balls, & tetrahedrons;
Approximately 145,000 tons of limestone boulders making up 64 boulder reefs.

Large steel, concrete, and limestone materials provide a stable substrate for colonization of marine plants and animals. Prior to deployment, materials are prepared by removing potential contaminants or debris, and a stability analysis is conducted. DERM supervises placement of the materials at the permitted sites, and monitors effectiveness.

ENTERPRISE TECHNOLOGY SERVICES DEPARTMENT (ETSD)
In 2001, ETSD began its On-Demand Paper Reduction Initiative with the purpose of reducing paper consumption and associated costs. Before the start of the project in 2001, the department's total print obligations were over 81 million pages of standard paper (8 1/2" X 11"), per year. As systems were converted to On-Demand and the initiative began to take hold, that figure dropped to 77 million in 2002; 68 million in 2003;

59 million in 2004; 57 million in 2005, and 53 million in 2006. The department forecasts continued reductions in 2007. The On-Demand implementation was only one part of the initiative to reduce paper. The second part of the initiative involved the acquisition of a two-sided printer. Depending on the requirements of the business unit application, this feature was used to print standard paper reports using both sides of the page.

Figure 2. ETSD Paper Reduction (2001 to 2006)



MIAMI-DADE TRANSIT (MDT)

Since 1991, MDT has been steadily decreasing emissions from diesel-operated buses in order to comply with Environmental Protection Agency (EPA) regulations that enable compliance with the Federal Clean Air Act. This has been achieved through the modification of the combustion process in newer heavy duty engines of the replacement buses. In order to reduce the emissions further, MDT in the year 2007 will switch from diesel with 500 parts per million (ppm) of sulfur to Ultra Low Sulfur Fuel Diesel (ULSD) with 15 parts per million (ppm) sulfur. During the period of 1991– 2006, emissions from four categories of noxious gases have decreased as follows:

- Hydrocarbon Emissions – No major decrease, still at the 1991 level, 1.3 gms/bhp-hr.
- Carbon Monoxide Emissions – Decreased by 7.09% from 15.5 gms/bhp-hr to 14.4 gms/bhp-hr
- Nitrous Oxide Emissions – Decreased by 50% from 5.0 gms/bhp-hr to 2.5 gms/bhp-hr
- Particulate Matter Emissions – Decreased 50% from 0.10 gms/bhp-hr to 0.05 gms/bhp-hr

These reductions translate into better air quality for the residents of Miami-Dade County as well as decreased emissions of greenhouse gases into the environment.

MDT continues to evaluate the introduction of cleaner diesel technologies (ULSD) and fuels in their operations. Options considered include hybrid diesel-electric engines, hydrogen fuel cell technology, compressed natural gas (CNG), and biodiesel. Due to cost, availability, and potential engine warranty issues, the department has determined that diesel-hybrid electric technology is currently the best option for MDT to achieve its emissions reduction goals, while continuing to provide a reliable bus service to its 260,000 daily Metrobus passengers. Some of the benefits of diesel-hybrid electric technology include:

- Diesel-hybrid technology has matured in the last 7 to 8 years and has been implemented by transit authorities across the nation. Nationally, fleets are approaching more than 20 million miles using hybrid technologies.
- MDT estimates a 25% fuel savings per bus, per year using this technology
- Due to the partitioning of power between diesel engine and electric motor, estimated reductions in the range of 40-90% in nitrogen oxides (NOx) emissions, 50-97% in particulate matter (PM) emissions, as well as 30% fewer greenhouse gas emissions (CO and C02).
- Greater bus reliability through an expected five-fold increase in the mean distance between mechanical failures.
- Reduction in labor hours and replacement cost for braking system parts is expected due to the regenerative braking capability of hybrid buses, which minimize energy loss when the bus is slowing down or at a stop.
- Electric power provides quicker, smoother, and quieter acceleration.

Looking forward, MDT has developed a Strategic Plan for Green Fuel Technology. This Plan serves as a long-term solution to reduce greenhouse gas emissions over the next 5 to 10 years and includes the following initiatives:

- Procurement of forty (40), sixty (60) foot long articulated buses for the Bus Rapid Transit (BRT) corridors; delivery of these buses is expected by the by early 2008.
- Use of diesel-hybrid electric technology in all of the180 buses that are planned for replacement between 2009 and 2011; all of these buses currently utilize 1997 through 2000 diesel technology.
- Development of zero emission technologies on the Hybrid platform (hydrogen fuel or fuel cell) by partnering with Federal, State and Private Enterprise.

WATER AND SEWER DEPARTMENT (WASD)

Water Conservation

Water Use Efficiency Five-Year Plan – the Department developed a Water Use Efficiency Five-Year Plan that was adopted by the Board in April 2006. The Plan was developed using Florida Department of Environmental Protection's (FDEP) goal based Conserve Florida Guide, this document serves as the baseline for the development of the 20-Year plan required by the South Florida Water Management District as a condition of the Consumptive Use Permit. The Plan includes a number of Best Management Practices that have been evaluated for water saving and cost effectiveness with annual goals. Following the State's directive, the overall goal of the Plan is to reduce wasteful, uneconomical, impractical, or unreasonable use of water resources per

Section 373.227, Florida Statutes. Specific objectives of the Water Use Efficiency Plan is to identify and promote supply-and demand-side management measures and best management practices to use by retail and wholesale customers. Specific objectives of the Plan include:

- Improve Water-Use Efficiency
- Reduce the Loss or Waste of Water
- Comply with Statewide Legislative Criteria and New Initiatives

Energy Conservation

WASD Energy Conservation Committee – This committee was initiated in 2004 to track energy usage and implement energy conservation measures. Accomplishments of the WASD Energy Conservation Committee include:

- Performance-guaranteed projects with Siemens for cost savings projects, e.g. replacement of lighting, electric motors, etc. with energy-efficient equipment.
- Consolidation of electric energy/fuels usage data electronically.
- Energy Conservation Committee website which includes energy savings tips, accomplishments, and means to submit additional ideas.
- Energy conservation tips in WASD newsletter.
- ENERGY STAR Power Management – computer monitors enter into a low-power "sleep" mode after a period of inactivity. This reduces the energy consumption from about 70 watts down to as little as 4 watts. Since its implementation in 2005, there was a usage reduction of 609,598 kwh, resulting in annual savings of $45,719.
- Lighting reduction in Main Office garage.

Power Efficiency Program - WASD's POWER Efficiency Program has led to the evaluation and implementation of several energy efficiency projects throughout the department such as:

- Reducing energy costs for wastewater pumping due to flow reductions associated with optimized pump station operation.
- Determining the need for appropriate lighting and controls at all WASD facilities. This includes replacing incandescent bulbs gradually with compact fluorescent bulbs and installing motion sensors. This has occurred in the Douglas Road Facility, and is part of the design for the LeJeune renovation and all new projects.
- Planted additional trees at several WASD facilities to help keep buildings cool and reduce energy usage.
- Conducting a feasibility study of the possibility of eliminating or reducing spinning reserves at the Alexander Orr Water Treatment Plant by installation of elevated storage. Spinning reserve refers to the continuously available auxiliary electrical source that supplies the high service water distribution pumps to avoid a loss of water pressure (and potential damage to the pumps) that can occur if the pump loses power. An elevated storage tank can maintain pressure in the system through gravity in the event of a power shortage. A system of elevated tanks, which will maintain pressures throughout the system, was included in the latest Water Facilities Master Plan.

Other WASD Projects and Initiatives

- WASD continues to offset energy consumption by capturing and utilizing methane gas, a bio-fuel generated as by by-product of sludge processing. WASD is currently modifying this process to improve fuel efficiency and reduce engine emissions.
    - The new process will provide a drier version of methane gas, which will improve fuel economy up to 150 percent and reduce emissions by 48 percent.
    - WASD has negotiated an agreement with the Department of Solid Waste Management to obtain landfill gas, which will allow production of more power at the South District Wastewater Treatment Plant.
    - Cogeneration of electric power using digester gas and increased heat recovery at the Central and South District Wastewater Treatment Plant.
- The Customer Service Division is currently working on a re-districting project to balance the size of WASD field districts, and plan for future growth of customer accounts. The resulting smaller geographic districts will require less driving time for field employees. This saves time and fuel as well as allowing for flexible work arrangements and compressed workweeks to make commuting and fuel time of employees less burdensome.
- Installation of video conferencing equipment in conference rooms to reduce travel mileage to meeting sites.
- The use of disposable cups is discouraged; purchasing of recycled content products that are available through the GSA catalog.
- In 2005, WASD initiated a comprehensive *Asbestos Management Program* to identify and remove Asbestos Containing Material (ACM) from all of its plants and major facilities and train employees in the proper handling of ACM. This was done to eliminate the potential release of asbestos into the air and protect the safety of employees. To date, asbestos surveys of all structures in all of WASD treatment plants are completed. Five other major facilities are currently being surveyed. Results of these surveys will be presented in the next annual report. WASD has completed the initial training and certified 574 Asbestos Workers and has provided them with the tools and knowledge they need to work in and around ACM. Fifteen other employees received the Asbestos Awareness training conducted by the University of Florida TREEO. [3]In addition, WASD has completed delivery of HAZMAT Technician Level Training to 340 employees. This training will enable staff to protect their health as well as prevent and mitigate any release of hazardous materials into the environment.
- WASD continues to maintain an extensive recycling program which includes recycling of paper, cardboard, empty spray paint cans, damaged computers, used toner cartridges, batteries, empty drums, used pallets, fluorescent bulbs, and UPS batteries. WASD has implemented Environmentally Preferred Product (EPP) purchasing throughout the Department as follows:
    - Obtained additional hybrid vehicles for its fleet.
    - Used Weed and Feed Turf Builder that has reduced the use of herbicides to only three (3) times a year.
    - Encourage EPP purchasing for items that are available through the GSA catalog.
    - Purchasing solar powered arrow boards to replace those powered by diesel fuel.

[3] This information was obtained from the departmental training database

DEPARTMENT OF SOLID WASTE MANAGEMENT

- The Home Chemical Collection (HC2) Program developed new operations and services, starting in April of 2005 with the opening of the South Dade Permanent HC2 Center and with a staff of four (three environmental technicians and one supervisor). New schedules and services have been incorporated throughout 2006. Sites are open five days a week, Wednesdays through Sundays from 9 am to 5 pm. A webpage was created for this program and can be found at: http://www.miamidade.gov/dswm/chemicals.asp

- In 2006, the HC2 Centers collected 217,011 pounds of chemicals and 2,070 patrons were served.

- Electronic Waste collection agreement with UNICOR: collection packaging of e-waste done in house, shipping and reconditioning done by UNICOR at no cost to the County. The HC2 Centers accept used electronic equipment from residential customers. Department of Solid Waste Management residential customers can also drop off used electronic equipment at any one of the following: North Dade, Palm Springs North, Golden Glades, West Little River, Sunset Kendall, West Perrine, Eureka Drive and Moody Drive.
- Dial-A-Life used cell phone collection is now available at the two Home Chemical Collection Centers. These phones are reused so that they do not end up in the waste stream.

- Propane Tanks are recycled so that the tanks are kept out of the waste stream. About 500 gas cylinders per month, mostly propane, helium and refrigerant bottles are collected at the Resources Recovery Facility.

- The Department of Solid Waste Management's Chem-Again Program; http://www.miamidade.gov/dswm/chem-again.asp. Residents sometimes drop off home chemical products that are unused or still in relatively good condition. Patrons may pick up some of these products free of charge for residential use after signing a release form, which holds DSWM harmless, as there are no guarantees of the quality or amount of the products listed. Consequently, the product is given another chance for use and consumption, thus reducing the amount of chemicals needing special treatment and handling.

- Resources Recovery Facility Water Reuse: Approximately 100,000 GPD of process water, which used to be discharged to the sewer, is being treated on site and reclaimed. This option reduces the need to withdraw 100,000 GPD of groundwater from the on-site supply wells and lessens the site discharge by 100,00 GPD.

MIAMI-DADE AVIATION DEPARTMENT (MDAD)

MDAD has established an Environmental Policy that includes the following general guidelines:

- Awareness – MDAD staff will continuously heighten its awareness of and keep a watchful eye on the environmental concerns of our community. MDAD will respond promptly to environmental incidents.
- Implementation of best management practices – MDAD will integrate its environmental management system with the best management practices and commit to continually review, improve and report on its effectiveness. Reports will be accessible to all employees and the public.
- Restoration of the environment – MDAD will continue environmental rehabilitation of its airports.
- Pollution Prevention – MDAD will strive to implement procedures that integrate pollution prevention and waste reduction. MDAD will seek to conserve natural resources by reusing and recycling materials, purchasing recycled materials and products that do not adversely affect the environment, and that can be reused, recycled, and disposed of in a safe manner.
- Objectives and Targets – MDAD will establish and update environmental objectives and targets through periodic audits and self-assessments.
- Regulatory Compliance – MDAD will continue efforts to meet or exceed all applicable government regulations and implement voluntary guidelines to which MDAD subscribes.
- Tenant Compliance – MDAD will work with its tenants, suppliers, and contractors to make them aware of MDAD's environmental management system and encourage them to adopt sound, comprehensive environmental management practices. http://www.miami-airport.com/html/environmental.html

In 2001, MDAD applied for International Organization for Standardization (ISO) 14001 certification. Currently, the Fuel Facility, Civil Engineering, Maintenance and Engineering, and Commodities Management Divisions of MDAD are ISO certified. ISO 14001 certification involves "minimizing harmful effects on the environment caused by the organization's activities and to achieve continual improvement of its environmental performance" (http://www.iso.org/iso/en/iso9000-14000/understand/inbrief.html). One of the requirements for ISO14001 certification requires the organization to establish an environmental management system. This system includes policies and objectives taking into account the organization's "legal requirements, other applicable requirements and information about significant environmental aspects." ISO defines "significant environmental aspects" as those that the organization identifies which it can control and influence. (http://www.iso.org/iso). MDAD was able to obtain ISO 14001 certification by implementing the Pollution Prevention and Waste Reduction activities listed below.

In September 2000 MDAD adopted in its Business Plan a goal to reduce VOC emissions by 10% by 2010. To achieve this goal MDAD conducted VOC Emissions Inventory, an Air Emission Reduction Feasibility Study, and a Biodiesel Feasibility Study.
MDAD achieved it 10% reduction in VOC in June 2001 with a reduction in multiple sources. The use of biodiesel was never implemented but remains an alternative for future reductions. The MDAD diesel equipment inventory includes approximately 192 pieces of equipment such a generators, forklifts, lawn movers, vehicles, tractors, and baggage tugs. This inventory currently emits approximately 11.1 tons/year of VOCs, 173 tons/year Carbon Monoxide, 35.8 tons/year Nitrogen Oxides, 1.7 tons/year Particulate Matter, and 4,420 tons/year Carbon Dioxide. MDAD continue to look for reductions that would significantly reduce its emissions and overall diesel consumption

Other Pollution Prevention and Waste Reduction activities supported by MDAD include:

- MDAD continues to maintain and expand it's ISO-14001 certification;
- Provided ISO-14001 Awareness Self-training module to MDAD contractors and consultants;
- Funds ISO 14001 Refresher Training;
- Storm Water Management Training;
- Presentation of the EMS/ISO 14001 Program at the 2006 MIA Safety Fair;
- MDAD continues it's active participation in the Resource Conservation Committee. Recently, the MDAD representative designed four (4) recycling posters for the committee to distribute throughout county departments;
- MDAD has discontinued the use of polystyrene cups and replaced them with hot/cold paper cups;
- Maintaining a recycling program that incorporates paper and batteries;
- Utilizing the west-end fuel tender facility, which has reduced fuel consumption by 20,890 gallons/year. Before the installation of this facility, tanker trucks were fueled on the east side only. Fuel consumption has been reduced because truckers do not have to drive from the west side to the east side of MIA for fuel.
- An initiative to set-up a central recycling center for airport tenants by 2008.
- The Department added Preconditioned A/C and 400Kz power to the gates in Concourse H, which will reduce diesel fuel consumption by operators in the amount of 131,400 gallons per year.

MDAD Facilities

- For the past 10 years MDAD has participated in recycling of removed carpet in its effort to divert landfill material. Currently, all newly installed carpet products contain some percentage of recycled content. It is estimated that MDAD recycles approximately 20,000 square yards of carpet per year.
- Aviation is recycling acoustical ceiling tiles in which 100% of the product is re-introduced into the new product.
- All new furniture at MDAD has the Green guard seal of approval and/or some recycled content within the products.
- The Interiors section specifications calls for low or no VOCs in Paints, Adhesives or Sealant products and low emitting materials.
- MDAD facilities have occupant sensors in most toilet and sink areas to reduce the use of potable water; waterless urinals were also installed in a restroom as a pilot project to determine the quantity of water that could be saved utilizing waterless urinals.
- LEED training has been provided in order to educate MDAD staff to implement the LEED Silver certification requirements for all new construction.
- Green cleaning products have been incorporated into janitorial services for the past year, and, all MDAD offices contain recycle bins for paper and waste.
- The MDAD Maintenance section operates an employee incentive program to ensure that all systems in new facilities are functioning as intended.

MDAD Maintenance

- The fleet management program has mandated ZERO additional MDAD vehicles for the last 5 years even though the staff has increased. In order to accomplish this the Airport has redistributed vehicles to the growing divisions, reassigned vehicles between divisions to better match their intended use, and ordered only select replacement vehicles using evaluation criteria that exceed GSA recommendations. These replacement vehicles are also ordered using alternative fuel models when available and/or smaller vehicles that can accomplish the same task.
- Recycling of wood pallets, waste oil, ballasts, lamps, and other such items are included in ISO 14001 training certification.
- MDAD has been using the countywide energy savings contract with audits conducted performed of the department buildings. Energy conservation methods are recommended such as lighting retrofits, chiller replacements and water saving devices. These items are installed on a cost-sharing basis.
- MDAD participates in the "Lights Out" program, and energy saving measure. The capability to turn off the lights in large areas that are not used during the night has been incorporated into MDAD's building management system on all new capital projects
- County-owned baggage tugs are run on electricity instead diesel and gasoline in order to improve air quality within the terminal. MDAD has also mandated the same operating standard for the airlines and service companies operating at MIA.
- A/C units and fans that are 5 horsepower and above are retrofitted using a variable frequency drive with a soft-start feature in order to conserve energy.
- The building management system (the largest single point system in the US and 2nd largest in the world) is constantly re-evaluated for energy conservation methods.

THE MIAMI-DADE PUBLIC WORKS DEPARTMENT (PWD)

The Miami Dade Public Works Department (PWD) oversees a multi-million dollar urban reforestation program. The Department has, to date planted over 60,000 trees Countywide. PWD staff provides a semi-annual fertilization application in order to maintain the health and aesthetic quality of the roadway tree inventory. The significance of this program is that trees provide several benefits to the community:

- Trees absorb the 'greenhouse gas' carbon dioxide. They also help filter other gaseous pollutants such as carbon monoxide, ozone, sulfur dioxide and nitrogen oxides. Trees can reduce street level particulates by up to 60%
- Trees reduce storm water runoff by intercepting rainfall through their leaves and branches and filtering out polluted particulate matter.
- Trees shade pavement, reduce air temperatures and reduce the effects of the 'urban heat island.'

In addition to its urban reforestation program, PWD has implemented other more eco-friendly practices that coincide with the goals of the Green Government agenda:

- Roadway construction project managers coordinate with staff arborist before construction project begins in order to determine if design changes may be required to preserve existing canopy.

- PWD provides for post construction planting of recently improved roadway corridors that exceeds the Department of Environmental Resource Management's (DERM) mitigation requirements.
- PWD routinely partners with DERM in issues of tree removal and mitigation in order to minimize canopy loss.
- PWD staff are currently sitting members of the Urban Horticultural Advisory Committee, the Street Tree Master Plan Committee and the Community Image Advisory Committee's Tree Canopy Subcommittee.

Other

The BCC approved an allocation of $3M ($1.5 M for PWD and $1.5M for P&R) for tree replacement during FY 06-07. In addition, PWD also receive a $1M per year for new and replacement trees as well. This year efforts are being focused in tree replacements and plan to install 7,500 trees within the public right-of-ways during this planting season, which will commence April 2007 through September 2007

MIAMI-DADE POLICE DEPARTMENT (MDPD)

- The Intergovernmental Bureau's (IB) Facilities and Maintenance Section of MDPD manages a recycling program that addresses items such as paper, cardboard, and old fluorescent lights that contain mercury.
- The MDPD is considering implementing lighting, plumbing, and air conditioning retrofits at six district stations and the Training Bureau to continue the reduction of annual utility and maintenance costs.
- All emergency generators maintained by MDPD are now designed to operate on low sulfur fuel.
- A new, energy-efficient, 600-ton chiller was installed at MDPD Fred Taylor Headquarters Building (FTHQB). This new chiller also operates on a more environmentally friendly Freon.
- The FTHQB was retrofitted throughout with energy efficient light fixtures and light bulbs.
- All motors (i.e., fan, water, and circulating pumps) at the FTHQB were replaced with high efficiency motors.
- The IB's Criminal Dumping Investigators, in collaboration with the courts, effectuated the removal and disposal of solid waste debris from the right-of-way by defendants as part of their community service hours.
- A collaborative effort on the part of the IB's Hazardous Materials Crimes Unit and the Property and Evidence Bureau improved operational procedures for monitoring and disposing of toxic arson evidence. A standard operating procedure was initiated to analytically screen each item of evidence to properly identify toxic or hazardous waste materials for appropriate disposal.
- Training Bureau personnel routinely recycle lead ammunition discharge from firearms at the gun range.

SEAPORT DEPARTMENT

The staff of the Port of Miami is committed to maintaining the delicate balance of development economic growth and the environment. As a result the seaport has implemented several initiatives:

- Established programs to recycle used toner cartridges, fluorescent bulbs and ballasts. In addition, the port has an oily rag disposal service in place for proper disposal and recycling of contaminated rags;
- Reduced the energy consumption at the Port of Miami through a series of on going projects. This includes projects such as installation of "variable frequency drives" on the air handlers in older buildings, retrofitting all lamps for watt reduction through the Port, and installation of computerized panels for timers of lights and other energy uses in cruise terminals;
- Began to offer annual training classes for employees and tenants, discussing pollution prevention efforts to protect the quality of storm water, and the resulting benefits to Biscayne Bay and other natural resources; and
- Participated in a pilot study to install water-free urinal systems. Two have been installed in the men's facility within the Administration Building, and two have been installed in Cruise Terminal 8.

JACKSON MEMORIAL HOSPITAL (JMH)

JMH continues to maintain a Hazardous Materials and Waste Management Plan. This plan includes processes designed to minimize the risk of harm to anyone within the confines of any Public Health Trust (PHT) designated facility. The processes include education, procedures for safe use, storage and disposal, and management of spills or exposures. Each department within JMH maintains an inventory of the hazardous materials and wastes they manage. The department leadership assures safe selection, storage, handling, use, and disposal of these materials. The department is responsible for evaluating Material Safety Data Sheets for hazards before purchase of departmental supplies to assure they are appropriate, and are the least hazardous alternate.

- Annual evaluations are conducted of the scope and objectives of the Hazardous Materials and Waste Management Plan, the effectiveness of the program is defined, and the performance indicators examined;
- Staff who may discover or be involved with emergency spills is provided with appropriate training to recognize spills that may exceed the ability to respond at that site, and their knowledge is evaluated at least annually;
- The installation of radioactive waste detectors at the waste management building was completed. Key staff was trained on the appropriate use and operation of the detectors; and
- Current performance measures are regularly reviewed, and provide Environment of Care (EC) managers with information that may be used to adjust program activities to maintain performance or to identify opportunities for improvement.

DEPARTMENT OF PROCUREMENT MANAGEMENT (DPM)

DPM in conjunction with the Department of Environmental Resources Management (DERM) has developed procedures requiring the use of "green" and/or recycled products under County contracts. DPM has incorporated a new clause into appropriate contracts that requires vendors to bid only those products identified on an "Acceptable Products List" attached to the solicitation. This list has been provided by DERM, and includes products that are considered to meet "green" product criteria by independent testing organizations in compliance with County Resolution R-702-05. Use of this new provision will be expanded as additional contracts are identified for application.

MIAMI- DADE CORRECTIONS AND REHABILITATION DEPARTMENT (MDCR)

To conserve energy and minimize waste, the Miami Dade Corrections and Rehabilitation Department implemented Miami-Dade County's Energy Conservation Performance Program. In fulfillment of this program's requirements the MDCR contracted the services of Florida Power and Light Services (FPLS). FPLS performed an Energy Conservation Measures (ECM) study at two of MDCR's detention centers. The primary goal of the ECM study was to identify opportunities to reduce operational energy and utility expenses. Energy savings and waste reduction opportunities that have been implemented to date are as follows:

- Retrofitted lighting apparatus with energy efficient technologies;
- Retrofitted water-conserving apparatus/fixtures;
- Installed efficient water heaters;
- Installed efficient air conditioning;
- Implemented trash minimization and recycling program; and
- Established a preventive maintenance plan.

Additionally, through its Florida Model Jail Standards inspection in November 2006, it was noted that water supply pipes were rusty and leaking in pipe chases at one facility and sinks, toilets, and showers were noted as inoperable in several cases at several facilities. Steps are being taken to address these issues and ensure that the full benefits of retrofitted water-conserving devices are realized by improving existing infrastructure.

PARK AND RECREATION DEPARTMENT (PRD)

The Parks Department is in the process of creating a new Open Space Master plan, a seamless, sustainable, model park system that addresses and promotes green environmental issues. This proactive, holistic, multidisciplinary approach to planning consists of a policy framework and a visionary map that illustrates the park development and stewardship for the next 50 to 100 years. It will specifically direct the Department of Parks and Recreation in conserving, acquiring, developing and managing open-spaces such as parks and public spaces, recreational facilities, greenways, blueways and conservation lands. The initiatives that are being developed in the Master Plan are as follows:

- **Great Streets:** connecting parks to each other and to communities through boulevards, parkways, and neighborhood streets.
- **Parks and Public Spaces:** providing a diverse and balanced system of passive and active recreational opportunities.
- **Natural Areas:** protecting and enhancing the natural heritage of the region, as well as existing biological diversity, restoration and management actions.
- **Greenways and Blueways:** providing wildlife habitat, scenic vistas, recreation, and transportation opportunities that serve to connect parks to each other and to communities through open space corridors and waterways. Over 500 miles of greenways and trails were added last year.

- **Greenbelt:** preserving sensitive lands, providing passive recreation opportunities, providing opportunities for trails and greenways and defining the urban boundary, buffer farm/rural lands.
- **Neighborhoods:** applying the open space master plan vision to neighborhoods by creating a system of great streets that connect people to parks and recreational facilities through a network of tree lined streets that encourage people to walk, bicycle and live healthier lifestyles.
- **Guiding Principles:** developing a Park System Charter for city, county, state and federal agencies to adopt that will help us all move together toward the common goal of a greener, more sustainable region.
- **Environmental Sustainability:** planting trees and adding to the County's tree canopy, working with WASD to promote water reuse and aquifer recharge, working with SFWMD on the CERP project as well as working with SFWMD to use parks to diffuse storm water runoff into Biscayne Bay, purchasing recycled plastic park benches in lieu of wood benches, purchasing recycled wood for park furniture and board walks, using solar power park lighting, evaluating and assisting Transit with the use of a regional park for a transit stop, managing natural system through the Natural Area Management Program, promoting environmental sustainability through preserving natural heritage, fostering community stewardship of natural resources through the Parks Eco-Adventures Program, protecting and improving water resources and air quality, protecting and improving land resources, reclaiming brown and greyfields, promoting energy conservation and the use of alternative technologies and green building practices for park architecture, landscape architecture and site planning, promoting alternative and non-consumptive transportation and preserving and enhancing biodiversity and native ecosystems,
- **Social Sustainability:** preserving cultural heritage, enhancing neighborhood viability, promoting a sense of place, promoting belonging and a commitment to place, promoting high standards for community aesthetics, promoting social interaction, sharing and appreciating cultural diversity, supporting family needs, promoting appreciation and participation in the arts, providing diverse and outstanding educational opportunities, promoting health, happiness, wellness and beauty, providing places for positive interaction of individuals, families and communities, promoting equity, fairness and inclusion, promoting trust, respect and ethical behavior, promoting quality neighborhoods.
- **Economic Sustainability:** attracting and supporting tourism, attracting and retaining top businesses, stabilizing and enhancing real estate values, providing quality infrastructure and public services, providing effective multi-modal transportation, attracting and supporting the "creative class", retaining and growing the middle class.

ADDITIONAL POINTS

- **Open Space Master Plan:** A vision to build and maintain sustainable and attractive communities
- **Greenway Trails (within Open Space Master Plan description):** The Miami-Dade County Greenway Network is composed of over 500 miles of proposed trails, bike paths and on road bike lanes. To date, the Park & Recreation (P&R) Department has identified 30 trails within the countywide network for implementation. These greenways contribute to active lifestyles and recreation

opportunities as well as to alternate methods of transportation. The Greenway trails provide wildlife habitat, scenic vistas that serve to connect parks to each other and to communities.

- **Interpretation:** Miami Dade Parks is involved in educating residents and tourists about the environment and benefits of parks, natural areas and sustainability . An increased knowledge of the environment, as well as cultural and historical aspects of the area will help visitors interpret the significance of a particular location and encourage the protection of resources.
- **Tree Canopy Replacement:** Miami Dade Parks will spend 1.5 million dollars to replace hurricane damaged trees. Approximately 1,500 to 2,000 trees will be planted in regional parks such as: Metro-Zoo, Crandon Park, the Deering Estate, as well as in 25 neighborhood parks throughout the county.
- **Ecosystem and Biodiversity Conservation:** Miami Dade Parks manages Natural Areas to protect, enhance, maintain different areas to sustain biodiversity for the south florida region. The Natural Areas Management also includes modification of natural area structure and composition in an effort to improve wildlife habitat and enhance the visitor experience.
- **Building Design:** Miami Dade Parks will be investing in LEED certified facilities to contribute to energy management and efficiency.
- **Best Practice Lecture Series:** Miami Dade Parks is in the fourth year of conducting best practice lecture series that focus on best practices in the fields of Park Planning, Recreation Trends, Planning, Green Architecture, Smart Growth and other related topics to build and maintain sustainable and attractive communities in Miami Dade County. The lecture series is open to various county departments, city park directors and regional agencies.

MIAMI-DADE HOUSING AUTHORITY (MDHA)

The following is an overview of the (P2) activities implemented by the Miami-Dade Housing Agency in the operations and maintenance of its public housing properties:

Operations & Maintenance

Integrated pest management:

The use of building preventive maintenance to eliminate pathways for pest granular baits, glue traps and roach control devices to reduce and or eliminate the routine use of chemical sprays for rodent and insect pest control.

Replacement Components:

The use of Energy Star components and equipment with SEER rating has become standard with the selection and procurement of appliances and HVAC units.

Lighting – the use of energy efficient lighting and replacement bulbs, such as compact fluorescent bulbs, with lower consumption and up to 5,000 operating hour vs. 1500 hr operating life. Additionally MDHA has determined to replace the traditional four pack light fixture using (cool white or bright white) color bulbs, with energy rated day light color bulbs. This not only reduces the need for the number of bulbs by 50% but also uses less energy per bulb.

Preventive Maintenance

- The building preventive maintenance is a major contributor to P2 activities by extending the useful life of the building components such as door hardware, plumbing, lighting fixtures, building cabinetry, and window components.
- The cleaning of HVAC coils and condensate drainage systems improves the performance of the appliance not only saving electrical consumption but improves resident satisfaction. The electrical saving is estimated at about 15% - 20% in offices when combined with the separation of compressor and air handling electrical controls.
- The replacement of water closet flappers. This single component results in a significant savings to the consumption of water, which is wasted when unattended. This activity is conducted as a part of our residential unit Planned Maintenance program and includes but is not limited to leak detection at the site, building systems and common areas saving an estimated $800,000 over the past three years.

Paper Recycling
The Agency uses a recycling contractor to pick up waste from its offices in special containers, and includes cardboard packaging material from specific locations.

Construction
Reusable building policy has been successfully implemented at the recent demolition sites for a HOPE VI project site (James E. Scott and Carver Homes). Concrete from demolished buildings was crushed and made available for use as clean fill for local projects.

Energy Performance Contract
The Agency has embarked on a new agreement for Energy Performance Contracting and is currently soliciting for technical services of Energy Service Contractors (ESCO'S) in order to identify areas of savings and implement the savings through technology improvements. The contractors must guarantee the savings through a measurable and verifiable means for cost justification and agency approval.

GREEN INFRASTRUCTURE INIATIVES
COMMUNITY IMAGE ADVISORY BOARD (CIAB)

In March 2007 the Board of County Commissioners is expected to consider two items of note from the CIAB working in conjunction with the County Manager's Office:

Miami-Dade County Street Tree Master Plan (Plan) – This Plan established policies and guidelines for County agencies and facilitates partnerships with municipalities in managing urban tree resources. Some of the initiatives of the Plan are:

- Establish a street tree working group
- Educated Miami-Dade citizens on tree canopy issues
- Promote "right tree, right place"
- Expand inventory coordination of street tree plantings
- Develop guidelines for the maintenance of the green infrastructure on par with the gray infrastructure
- Research of historical habitat and ecology conditions
- Annual update to the BCC on the status of the street tree canopy

Urban Ecosystems Analysis – This analysis will provide the County with a decision tool using an analysis conducted on the changes in impervious surfaces, tree canopy, non-tree vegetation, bare soil, and water that have occurred within the County during the last decade. The analysis will also help determine the economic value that these changes have had on storm water runoff, and air and water quality.

FUTURE ACTIVITIES

The County will continue to explore our operations and make an assessment of what we have accomplished so far and what needs to be accomplished going forward. Additionally, as seen from the efforts required to coordinate the compilation of this report, it is clear that the need exists to develop tracking mechanisms for Green Government across County Departments. In order to be successful in this effort, goals for the future have to be set, such as seeking the Green Government designation from the Florida Green Building Coalition. Some of the future activities may include:

- Demonstration of diverse green projects to the community,
- Creation of specific education programs, such as Florida Yards and gardens, Citizen Design, Green by Design.
- Financing sustainable building through tax and other incentives; reform or modification of pubic policy, marketing the change to the community, and operating or managing the subsequent change.
- Work with municipalities to join the County in its Green Government efforts.
- Chicago Climate Exchange Membership.
- Climate Change Advisory Task Force initial work and plan development.
- Consideration of comprehensive strategies that better link urban development land use approvals with the availability of resources and services.
- Reorganization and alignment of all County sustainability efforts in a more coordinated fashion.